

What is claimed is:

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- 5 1. An isolated human ABC1 promoter capable of directing transcription of a heterologous coding sequence positioned downstream therefrom, wherein the promoter is selected from the group consisting of:
- 10 (a) a promoter comprising the nucleotide sequence shown in SEQ ID NO: 1 ;
- (b) a promoter comprising a nucleotide sequence functionally equivalent to the nucleotide sequence shown in SEQ ID NO: 1; and
- 15 (c) a promoter comprising a nucleotide sequence that hybridizes to a sequence complementary to the promoter of (a) or (b) in a Southern hybridization reaction performed under stringent conditions.
- 20 2. The promoter of claim 1, wherein the promoter comprises the nucleotide sequence shown in SEQ ID NO: 1.
- 25 3. The promoter of claim 1, wherein the promoter comprises a nucleotide sequence that is at least 87% homologous to SEQ ID NO: 1.
4. The promoter of claim 3, wherein the promoter comprises a nucleotide sequence that is at least 95% homologous to SEQ ID NO: 1.
- 30 5. A recombinant expression construct effective in directing the transcription of a selected coding sequence which

comprises:

(a) a human ABC1 promoter nucleotide sequence according to claim 1; and

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(b) a coding sequence operably linked to the promoter, whereby the coding sequence can be transcribed and translated in a host cell, and the promoter is heterologous to the coding sequence.

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6. The recombinant expression construct of claim 5, wherein the coding sequence encodes a transporter polypeptide.

15 7. The recombinant expression construct of claim 6, wherein the transported polypeptide is ABCA1 transmembrane transporter protein.

20 8. The recombinant expression construct of claim 6, further comprising a nucleic acid segment encoding a transactivator protein capable of upregulating the ABC1 promoter.

25 9. The recombinant expression construct of claim 8, wherein the transactivator protein is the Liver-X-Receptor, the Retinoid-X-Receptor, or a heterodimer of the Liver-X-Receptor and the Retinoid-X-Receptor.

30 10. A host cell comprising the recombinant expression construct of claim 5.

11. The host cell of claim 10, wherein the host cell is stably transformed with the recombinant expression construct of claim 5.

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12. The host cell of claim 10, wherein the host cell is a macrophage.
13. The host cell of claim 10, wherein the host cell is an immortalized cell.
14. The host cell of claim 10, wherein the cell is selected from the group consisting of RAW cells, African green monkey CV-1 cells and human 293 cells.
15. A method for expressing foreign DNA in a host cell comprising: introducing into the host cell a gene transfer vector comprising an ABC1 promoter according to claim 1 operably linked to a foreign DNA encoding a desired polypeptide or RNA, wherein said foreign DNA is expressed.
16. The method of claim 15, wherein the promoter nucleotide sequence is identical to the sequence represented by SEQ ID NO: 1.
- ~~17. The method of claim 15, wherein the promoter nucleotide sequence is a nucleotide sequence functionally equivalent to the ABC1 promoter sequence represented in SEQ ID NO: 1.~~
18. The method of claim 15, wherein the gene transfer vector encodes and expresses a reporter molecule.
19. The method of claim 18, wherein the reporter molecule is selected from the group consisting of beta-galactosidase, beta-glucuronidase, luciferase, chloramphenicol acetyltransferase, neomycin phosphotransferase, and guanine xanthine phosphoribosyltransferase.

20. The method of claim 15, wherein the introducing is carried out by a means selected from the group consisting of adenovirus infection, liposome-mediated transfer, topical application to the cell, and microinjection.
21. The method of claim 15, further comprising introducing into the cell a gene transfer vector comprising a nucleic acid segment encoding a transactivator protein capable of upregulating the ABC1 promoter.
22. The method of claim 21, wherein the transactivator protein is the Liver-X-Receptor, the Retinoid-X-Receptor, or a heterodimer of the Liver-X-Receptor and the Retinoid-X-Receptor.
23. The method of claim 15, further comprising contacting the cell with a transactivator protein capable of upregulating the ABC1 promoter.
24. The method of claim 23, wherein the transactivator protein is the Liver-X-Receptor, the Retinoid-X-Receptor, or a heterodimer of the Liver-X-Receptor and the Retinoid-X-Receptor.
25. The method of claim 24, further comprising contacting the cell with an agonist of the Liver-X-Receptor, of the Retinoid-X-Receptor, or of a heterodimer of the Liver-X-Receptor and the Retinoid-X-Receptor.
26. A method of determining whether a chemical not previously known to be a modulator of the human ABC1 gene

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transcriptionally modulates the expression of the human ABC1 gene which comprises:

5 (a) contacting a sample which contains a predefined number of identical eucaryotic cells with a predetermined concentration of the chemical to be tested, each cell comprising a DNA construct consisting essentially of in 5' to 3' order,

10 (i) a modulatable transcriptional regulatory sequence of the ABC1 gene,

(ii) the ABC1 promoter of claim 1, and

15 (iii) a reporter gene which expresses a polypeptide that produces a detectable signal, coupled to, and under the control of, the ABC1 promoter, under conditions wherein the chemical if capable of acting as a transcriptional modulator of the ABC1 gene, causes a detectable signal to be produced by the polypeptide expressed by the reporter gene;

20 (b) quantitatively determining the amount of the signal produced in (a); and

25 (c) comparing the amount of signal determined in (b) with the amount of signal produced and detected in the absence of any chemical being tested or with the amount of signal produced and detected upon contacting the sample in (a) with other chemicals, thereby identifying the test chemical as a chemical which causes a change in the amount of detectable signal produced by the polypeptide expressed by the reporter gene, and determining whether the test
30 chemical specifically transcriptionally modulates expression of the human ABC1 gene.

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27. The method of claim 26, wherein each cell expresses a transactivator protein capable of upregulating the ABC1 promoter.
- 5 28. The method of claim 27, wherein the transactivator protein is the Liver-X-Receptor, the Retinoid-X-Receptor, or a heterodimer of the Liver-X-Receptor and the Retinoid-X-Receptor.
- 10 29. The method of claim 26, further comprising contacting the cells with a transactivator protein capable of upregulating the ABC1 promoter.
- 15 30. The method of claim 29, wherein the transactivator protein is the Liver-X-Receptor, the Retinoid-X-Receptor, or a heterodimer of the Liver-X-Receptor and the Retinoid-X-Receptor. *B*
- 20 31. The method of claim 26, wherein the sample comprises identical cells in monolayers.
32. The method of claim 26, wherein the sample comprises identical cells in suspension.
- 25 33. The method of claim 26, wherein the identical cells comprise human, animal, or plant cells.
34. The method of claim 26, wherein the predefined number of identical cells is from about 1 to about 5×10^5 cells.
- 30 35. The method of claim 26, wherein the predetermined concentration is from about 1.0 pM to about 20 μ M.

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36. The method of claim 26, wherein the predetermined concentration is from about 10 nM to about 500 μ M.
- 5 37. The method of claim 26, wherein the contacting is effected from about 1 hour to about 24 hours.
38. The method of claim 26, wherein the contacting is effected with more than one predetermined concentration of the molecule to be tested.
- 10 39. The method of claim 26, wherein the modulatable transcriptional regulatory sequence comprises a cloned genomic regulatory sequence.
- 15 40. The method of claim 26, wherein the DNA construct consists essentially of more than one modulatable transcriptional regulatory sequence.
- 20 41. The method of claim 26, wherein the reporter gene is inserted downstream of the *ABC1* promoter by homologous recombination.
- 25 42. The method of claim 26, wherein the reporter gene encodes a luciferase, chloramphenicol acetyltransferase, beta-glucuronidase, beta-galactosidase, neomycin phosphotransferase, or guanine xanthine phosphoribosyltransferase.

43. The method of claim 26, wherein the reporter gene is the ABC1 gene.
44. A method of treating atherosclerosis in a subject which comprises administering to the subject a therapeutically effective amount of a chemical selected by the method of claim 26 to modulate expression of the human ABC1 gene.
45. A method of simultaneously screening a plurality of test chemicals to determine whether the chemicals are capable of transcriptionally modulating the ABC1 gene which comprises simultaneously screening the test chemicals against each of the genes of interest according to the method of claim 26.
46. A transgenic non-human mammal whose germ or somatic cells contain the promoter of claim 1 introduced into the mammal, or an ancestor thereof, at an embryonic stage.
47. The transgenic non-human mammal of claim 46, wherein the mammal is a mouse.
48. A compound which modulates expression of the human ABC1 gene, which has been identified by the method of claim 26.
49. An isolated human ABC1 gene comprising six exons and a promoter, wherein the promoter is selected from the group consisting of:
- (a) a promoter comprising the nucleotide sequence shown in SEQ ID NO: 1 ;

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(b) a promoter comprising a nucleotide sequence functionally equivalent to the nucleotide sequence shown in SEQ ID NO: 1; and

- 5 (c) a promoter comprising a nucleotide sequence that hybridizes to a sequence complementary to the promoter of (a) or (b) in a Southern hybridization reaction performed under stringent conditions.

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